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ABSTRACT

Rural workers earn lower wages than nonrural workers, a difference attributed to lower returns to worker characteristics. This paper examines racial and gender differences among rural workers and provides evidence of the structure of wages faced by American Indians. Data were drawn from the 1987 National Medical Expenditures Survey (NMES) and the NMES-Supplement of American Indians and Alaska Natives (living on or near a reservation or tribal area). The present study included data for nonmetropolitan residents aged 22-54 who were not self-employed. Males included 975 American Indians, 1,094 Whites, and 238 Blacks; females included 1,146 American Indians, 1,275 Whites, and 347 Blacks. Within each gender group, racial differences are summarized for labor force participation, educational attainment, percentage in managerial occupations, and average wage. Average hourly wages were $10.20 for White males, $8.09 for American Indian males, $7.38 for Black males, $7.09 for White females, $6.38 for Black females, and $6.31 for American Indian females. Regression analysis revealed that only 14 percent of the wage difference between White and American Indian males is unexplained by personal and job characteristics, while 66 percent of the difference between White and Indian females is unexplained. Comparing Whites and Blacks, 44 percent of the wage difference between males and 97 percent of the difference between females is unexplained. In rural areas, Whites and American Indians receive very small wage returns to education, Blacks suffer disproportionately severe penalties for low educational attainment, and females of all races enjoy much higher returns to education than do males. Contains 26 references and statistical tables. (Author/SV)

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Rural Wages and Returns to Education: Differences Between Whites, Blacks, and American Indians

Upjohn Institute Staff Working Paper 94-27

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Rural Wages and Returns to Education:
Differences Between Whites, Blacks, and American Indians

Abstract

Workers in rural areas earn lower wages than nonrural workers and previous evidence has attributed these differences to lower returns to worker characteristics. This paper builds on that data by examining racial and gender differences within the broader group of rural workers. While there is extensive evidence on both the structure of wages and the source of racial wage differentials between Whites and Blacks, there is no such evidence for those in either group living in rural areas. Nor is there much evidence in this literature for American Indians.

This paper's contribution to the literature is two-fold. First, it broadens the existing evidence regarding rural workers by focussing on racial and gender differences. Second, it provides new evidence of the structure of wages faced by American Indians, a group typically ignored in empirical research due to data problems.

The results reveal that only 14% of the 24% total wage difference between Whites and American Indians for males are unexplained by observable personal and job characteristics, but 66% of the 11% wage difference remains unexplained for females. Comparing Whites and Blacks, 44% of the 31% wage difference is unexplained for males, while 97% of the 15% wage difference is unexplained for females. With the rural focus, Whites are more similar to American Indians, both experiencing very small wage returns to education. However, in both samples, Blacks suffer disproportionately severe penalties for low educational attainment. For all three races, females enjoy much higher returns to education than males.

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Rural Wages and Returns to Education: Differences Between Whites, Blacks, and American Indians

I. Introduction

Rural poverty and the poor economic status of American Indians are two issues of policy concern for the 1990's. Workers in rural areas suffer higher poverty rates (including chronic poverty), lower earnings, and complete fewer years of education than their nonrural counterparts. However, the rural poverty problem is complex and requires different solutions than urban poverty. (Dudenhefer, 1991) Dudenhefer notes several behavioral differences between urban and rural workers, with rural workers facing less welfare dependence, fewer single parents, and a larger percentage working for pay. (page 37). Additionally, according to Dudenhefer and McLaughlin and Perman (1991), a significant portion of the rural/urban wage gap is attributed to rural workers receiving lower returns to their endowments and job characteristics than metropolitan workers.

Independent of rural/urban residence, there are significant racial and gender differences in economic status. Compared to other minority groups, American Indians tend to drop out of school earlier, maintain looser ties to the labor force, suffer higher poverty rates, and earn lower wages. (See, for example, Snipp 1989). Limited evidence of an improved situation in the 1980's can be found for American Indians. However, while American Indians males' employment rates have grown in the past several decades (with an accompanying percentage increase in unemployment rates comparable to that of White males), unemployment rates of Black males have grown dramatically. Still, both Blacks and American Indians are employed at significantly lower rates than Whites, particularly for males.

When the focus is restricted to rural workers, a more clear picture of racial differences emerges. Comparing American Indians to overall samples of Whites and Blacks yields evidence that AI are the most economically disadvantaged; with a focus on rural workers, the difference in the structure of urban versus rural labor markets is eliminated, yielding a reorganized relative ranking.

One way to sort out the factors responsible for observed wage gaps is to compare the structure of wages across groups by estimating wage equations separately by race and gender. Then, wage gaps for different minority-majority comparisons can be calculated, and using the wage equation results, the percentage of that gap that would remain even if the minority possessed the majority's characteristics can be calculated. Previous evidence suggests that at least 50% of American Indian-White wage gaps can be explained by observable characteristics. (Note, however, that this evidence does not reflect rural individuals only.)

A second issue of interest is to examine the differences in returns to education across groups. (See, for example, Mincer 1974.) One source of serious labor market disadvantage is

a low level of educational attainment. According to Sorkin (1969, 1970, and 1974) and others, one explanation for higher dropout rates is that the return to human capital investment is lower. HK investment is a function of the perceived rate of return, and because of the lack of high-paying jobs on reservations, for example, American Indians may decide rationally that the return to extra schooling may be too low. However, the existing evidence for both American and Canadian Indians does not support this theory. Sandefur and Scott (1983) find that AI exhibit greater wage returns to education than non-Indians, and Patrinos and Sakellariou (1992) and George and Kuhn (1994) come to the same conclusion for Canadian non-reserve Indians. However, Gwartney and Long (1978) estimate annual earnings equations and find that Blacks and American Indian males receive far smaller returns to education than Whites. Except for the lowest education level, the opposite was true for females.[1] Comparing rural and urban workers, Dudenhefer (1991) and McLaughlin and Perman (1991) find that rural workers receive significantly lower returns for endowments and job characteristics. Carliner (1976) finds that Black males receive a 50% lower wage return to education than White males.

Lang and Ruud (1986) specifically test the notion that lower income individuals place less value on school investments due to an attitude known as the "culture of poverty" by comparing differences in returns to schooling and implicit discount rates. However, while they focus on Blacks and Whites, they reject the assertion that minorities are responsible for their own lack of economic success by failing to take a long-term view of life. One way to examine this empirically is to compare estimates of the return to education across race and gender. This can be done by estimating log wage equations with years of education as a regressor, yielding direct estimates of the returns to education.

The rest of the paper proceeds as follows. First, in Section II, I outline the underlying model to be used in estimation, and discuss econometric details as well as equation specification. Then, in Section III, I describe the data. Finally, in Section IV, I discuss the estimation results, first using the results of equation (1) to show how the various education category measures and job characteristics affect the wage for the different samples. Then, equation (1) is re-estimated, replacing the three discrete education category variables with a single continuous years of education measure to produce a simple estimate of the average returns to education. Finally, racial and gender wage differences are described, with a discussion of the percentages of these gaps explained by personal and job characteristics.

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[1]One explanation for the discrepancy is the data: while Gwartney and Long rely on urban individuals only, Sandefur and Scott do not impose this restriction.

II. Estimation Strategy

This paper explains the structure of wages using results based on wage equations that are specified in the tradition of Becker's human capital model (Becker, 1975).[2] The approach taken in the estimation is the same as the empirical work implemented by Sandefur and Scott (1983) and Patrinos and Sakellariou (1992). The following wage equation is estimated separately by sex and race, producing six distinct sets of parameter estimates.

(1) $\ln W = B_0 + X_1B_1 + X_2B_2 + E_1$.

In the above equation, lnW is the natural logarithm of the real wage, defined as the average hourly dollar compensation. X_1 represents a vector of variables containing job characteristics, and X_2 represents human capital characteristics. This second vector will take two forms, the first including discrete education category variables and the second including a continuous measure of years of education.

Because wages are observed only for those individuals currently working for pay, a selection-correction variable is included in X_2 to control this sample selection. (See Heckman, 1979).[3] Because labor force participation rates vary dramatically across racial groups, the significance of the sample selection term is likely to vary dramatically between the different groups. Hoffman and Link (1984) addressed this issue in their wage equation estimates for Blacks and Whites, and found that the selection term was much more important in explaining the wages of Black males than for White males. Schultz (1993) explains that omitting a self-selection correction in estimating wage equations will impose a more serious bias on women's estimated returns to education than for men.

Human capital variables are included as regressors in the wage equation to control the wage returns to human capital investments in education and experience. These variables are age, age-squared, and education category variables (less than 12 years, 12 years, and from 13 to 15 years of education). The fourth category of four years of college or more is the category excluded from the regressions. Because a direct experience measure is not observed in the data, age is included to proxy experience and age-squared controls the changing effects of age across

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[2]Wages are chosen as the point of comparison rather than earnings to avoid confusing hourly earnings differences and differences in participation behavior.

[3]To construct this additional regressor (MILLS), a preliminary regression is run to explain the probability of working for pay, derived from an underlying utility-maximization framework in which work status is chosen by comparing the potential market wage to the reservation wage. This equation is estimated as a Probit model, and the resulting coefficients are used to construct MILLS. Although it is not necessaryto include more variables in the preliminary probit to achieve identification of MILLS in the wage equation (due to differences in functional form), two variables thought to influence the probability of working that do not also affect the structure of wages directly are included just in that preliminary regression. These identifying variables are household size and marital status, and control the impact of family obligations on tastes for work.

the life-cycle.[4] A final measure of experience is a dummy variable that equals one if the individual has ever spent more than one year out of the labor force since first entering the labor force after completing school. This variable may proxy an overall lack of strong labor market skills. In a second set of regressions, the education category variables are replaced with a single, continuous measure of education to produce a single estimate of the returns to education.

Finally, the job characteristics included are variables for firm size, union status, occupation category dummy variables, and an occupation majority density variable. (See, for example, Blau and Beller 1992 and Sandefur and Scott 1983). This density variable describes job quality by measuring the percentage of workers in that occupation who are white males.[5]

The results of these wage equations are used for two tasks. First, the regression results for equation (1) are discussed, including estimates of the returns to education. These results are compared across race and gender. Second, differences in wages between minorities and majorities are calculated, and then the percentage of that gap that would persist even if minorities possessed the majority's characteristics are imputed.

III. Data

The data for the empirical analyses are drawn from the 1987 National Medical Expenditures Survey (NMES). This survey has several components, including the two used in this paper. The data for Whites and Blacks are drawn from the NMES-Household File, and the data for American Indians are pulled from the NMES-Supplement of American Indians and Alaskan Natives, or SAIAN. (See Edwards and Berlin, 1989.) In addition to the detailed medical information available in the NMES, detailed demographic and employment information is also available. To my knowledge, no other research comparing wage differences using the NMES has been conducted. These data are distinctive because of their recent collection, large sampling of American Indians, and detailed job characteristics, often excluded from individual-based surveys, are collected, including firm size and union status.

Neither of these two NMES components represent a random sample of the US population. For the HH component, "disproportionate sampling rates were applied for households including members with characteristics of interest: households including blacks, Hispanics, the elderly, those with Activities of Daily Living difficulties, and the poor." (page 3, Edwards and Berlin, 1989.) The NMES provides weights for use in estimation to correct for this intentional non-random sampling.

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[4]Some wage equation estimates (such as Wellington, 1993) incorporate very detailed work experience and training measures, but there are no measures of experience in the data used in this paper.

[5]This occupational density variable was constructed by matching NMES occupation codes to the full merged file from the 1988 and 1989 March CPS samples.

The SAIAN sample includes American Indians living on or near a reservation or tribal area and eligible for services from or sponsored by the Indian Health Service.[6] Therefore, by design, the sample does not purport to represent all American Indians in the United States. Additionally, some over-sampling criteria were implemented to assure confidentiality and reduce costs. Specifically, counties with the lowest concentrations of eligible individuals were not sampled, and the remaining AI counties were over-sampled. The SAIAN weights control the effects of this non-random sampling in estimation.

Interviewee confidentiality for the SAIAN data is a more significant concern than for the Household file and so fewer variables have been made available publicly. The most important variables not available concern geographic residence (region or state) and residence on a reservation. However, due to the sampling strategy, one can assume that most of the American Indians live on reservations in the states with the largest concentrations of American Indians.[7]

Individuals are included in the estimating samples if they are between the ages of 22 and 54, are not self-employed, are not missing data for any of the key variables, and do not live in an MSA.[8] See Figure 1 for the list of variables and Table 1 for variable means. As is seen in Table 1, there are significant differences across race and sex.[9] In the SAIAN, there are 975 American Indian males, with a labor force participation rate of 66%.[10] The corresponding sample sizes and labor force (LF) participation rates for the White and Black males in the Household file are 1094 (87% in LF), and 238 (73% in LF), respectively. On average, Whites have the highest education levels at 12.4 years, with American Indians about one-half year behind and Blacks about 1.2 years behind. However, the four education category variables reveal an even greater education disparity: twice as many Blacks males fail to complete 12 years of schooling as Whites, with AI males falling in between the two. And, the disparity at the highest education

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[6]Because those surveyed in the SAIAN must have been identified by the Bureau of Indian Affairs as eligible for the IHS, problems with inconsistent self-reporting of Indian status found in other data sets is not a problem here. See, for example, Grofman and Migalski (1988).

[7]According to researchers at the Agency for Health Care Policy Research (the agency responsible for the NMES), over three-fourths do not live in a metropolitan area. The few who do live in a metropolitan area live in very small ones that are not designated as MSA's. This corresponds exactly with the rural samples of whites and blacks used in this paper.

[8]Rural residents are identified as those not living in a metropoltan area. This identification will result in the exclusion of rural individuals that live within an MSA, and so undercounts the number of truly rural whites and blacks. However, it corresponds exactly with the American Indian sample that also contains no MSA residents, and is consistent with the terminology in the literature. See, for example, Dudenhefer (1991) and McLaughlin and Perman (1991).

[9]In nearly every case, these differences in means across race and sex are statistically significant at the 99% level.

[10]In this paper, labor force participation is synonymous with employment; unemployment is countedas not in the labor force. Also, this employment pattern for American Indians is consistent with the behavior described by Snipp (1989).

category is most severe: twice as many White males complete four years or more of college schooling than AI or Blacks.

In addition to the American Indian males' lower labor force participation rate, 26% of employed AI have spent one year or more out of work since leaving school; for Whites and Blacks, the figures are 18% and 14%. White males are fifty percent as likely to work in a managerial occupation than AI males, and 12 times more likely than Blacks. And, the same percentage of all three groups work in a white male dominated occupation. White males are most heavily unionized. Whites are much more likely to be married than AI, while Blacks are the least likely to be married. And, AI males are most likely to have young children, and Blacks are least likely. Overall, the most striking difference across race for males is observed in the average hourly wage--American Indians and Blacks earn $8.09 and $7.38 per hour, significantly lower than the average white wage of $10.20.[11]

There are 1146 American Indians, 347 Blacks, and 1275 Whites in the three female samples. Sixty-eight percent of Whites participate in the labor force, while only 59% of Blacks and 51% of AI are in the labor force. Other comparisons across race for females correspond fairly closely with the males' comparisons. Black females also achieve the lowest education levels, are most likely to drop out of high school, and are least likely to complete four or more years of college.

American Indians and White females are 50% more likely to be married than Black females, and AI are by far the most likely to have young children. Currently employed Black females are least likely to have spent a significant amount of time out of the labor force since leaving school. Black and AI females earn on average $6.38 and $6.31 per hour, about 60 cents per hour less than White females. White females earn almost as much per hour as Black males.

Means for the full samples of Whites and Blacks (not stratified by rural residence), are found in Table A-1 in the Appendix. Compared to their corresponding Rural subsamples, the full Black and White individuals have more education, slightly higher labor force participation rates, and higher wages. Black males continue to earn the lowest wages.

IV. Empirical Results

Results from the wage equations estimated separately by race and gender are given in Tables 2A and 2B, a summary table of returns to education across groups is given in Table 3, and Table 4 contains the percentage wage difference and the percentage of that gap unexplained by differences in personal and job characteristics. Note that all regressions are weighted using the appropriate NMES sampling weights.

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[11]The hourly wage measure is constructed within the survey, and is an average wage measure.

The wage equation results are very different across gender. Comparing the American Indian samples to the rural Black and White samples, Table 2A and 2B present the lnwage equation results. Coefficients on the three educational category variables show the negative return (or penalty) for low education levels. AI females suffer the largest wage penalty for having relative low education, with their penalty for failing to complete high school three times the penalty faced by rural white females. None of the three educational category variables are significant for rural Black females. Put conversely, this implies that AI benefit the most from four years of college, with Blacks benefitting the least from high education. The other human capital control variable, NOJOB, is significantly negative for AI and Whites, but not significant for Blacks. Whites incur twice the wage penalty than AI for having spent some time out of the labor force in the past. While this runs counter to expectations (that NOJOB is a proxy for having poor labor market skills), this could suggest a racial difference in the causes of intermittent work history; with AI having faced labor demand constraints, while Whites' time out of the labor force might have been more voluntary, perhaps due to family responsibilities. If the white women temporarily quit better jobs that tend to exhibit more wage growth than low level jobs, this loss of wage growth would be felt more by White females.

Only AI females exhibit a positive and strong return for holding a union job, but all three incur an approximately equal benefit to working in a larger firm. Both White and Black females enjoy a wage benefit arising from employment in a more white-male dominated occupation, with the benefit to White females 50% larger than that for Black females. Finally, the sample-selection correction is significantly negative for AI females, implying a negative correlation between unobservables in the labor force participation and wage equations.

For males, the human capital variables are far less successful in explaining wages for the three racial groups. None of the three educational category variables are significant for AI or rural White males, but each is significantly negative and large for rural Black males. Comparing across gender as well, these large low education wage penalties for Black males are comparable to those experienced by AI females. American Indian males are the only group to suffer from having spent time out of the labor force in the past, consistent with the expectation that NOJOB proxies poor overall labor market skills.

Each of the three groups benefit substantially from working in a union job, with Black males benefitting the most and Whites the least. This is consistent with existing union wage literature that suggests unions play a wage-equalizing role in the labor market. Only white males benefit from employment in a larger firm, but all three groups benefit from working in a predominantly White male-dominated occupation. Finally, the sample-selection correction is significantly negative for White males, but significantly positive (at the 10% level) for AI males. This implies that while unobservables in the LFP and wage equations are negatively correlated for AI males, the opposite is true for White males.

Overall, the wage equation results imply that AI females and rural Black males suffer the most from a large penalty for low education and benefit the least from traditionally beneficial job

characteristics. Rural white males look very much like their AI counterparts. Note that these results imply nothing about education quality, for which evidence is not available in the data.

As the reader can see in Tables A-2A and A-2B in the Appendix, results from the full samples of Whites and Blacks (not stratified by rural residence) reveal significantly different results. The low educational wage penalties for Black males are smaller and now White males also suffer low educational penalties.

Single parameter estimates for returns to education are presented in Table 3. In the comparison across rural samples, both White and AI males exhibit no significant return to education. The White male return, although statistically insignificant, is the smallest of all groups. For females, the estimated returns to education for Whites and Blacks is 3.1%, but only significant for Whites. The AI female return is the highest of all groups, at 5.6%. Looking at the full samples of Whites and Blacks, White females earn a larger education return than their rural counterparts, with a return equal to 3.8%. For Blacks, the returns to education are very similar across gender, at 4.6% for males and 4.2% for females. White males exhibit a 2.8% return to education. Most of these results fall within the range of estimates found in the existing literature, but the overall white male return is lower than found typically. The rank ordering of the estimated returns to education is not consistent with the hypothesis tested by Lang and Ruud (1986); that is, the group with the lowest education (Blacks) do not reveal the lowest returns to education.

Percentage wage differences and the percentage of these total differences left unexplained by differences in observed personal and job characteristics are given in Table 4.[12] The first two general columns examine wage differences across race but within gender, and the final general column examine within-race gender wage differences. Columns 1, 3, and 5 show the percentage difference in wages between the minority and the majority. This is approximated using the formula: *lnwage(majority) - lnwage(minority)*. Columns 2, 4, and 6 show the percentage of the total wage difference that remains unexplained after personal and job characteristics are controlled. This unexplained difference is calculated by first imputing an adjusted wage, the wage that the minority would earn with majority characteristics and minority returns. Then, the formula for the percentage difference in the wage that persists after eliminating differences in characteristics is: *lnwage(majority) - adjusted lnwage(minority)*, which can be denoted as D′. Finally, the percentage of the total wage difference that is unexplained is this D′ divided by the actual percentage difference in wages. This unexplained difference is equivalent to the difference

[12]Note that the Oaxaca decomposition (1973), a commonly used means of describing wage differences, is not utilized in this paper. The algebraic derivation required for the Oaxaca decomposition masks some underlying assumptions and is not necessary to convey the desired information. For criticisms of the Oaxaca technique, see Darity (1982) and Cain (1986).

arising from differences in returns to characteristics, which can arise due to unobserved factors or race effects.[13]

Rural Black and White males have the largest percentage difference in wages at 31.1%. See that nearly half of this difference remains unexplained after controlling for differences in personal and job characteristics. This unexplained difference is attributable to differences in returns with a given set of endowments. The difference in AI and White male wages is a third less at 23.7 %, 14.3% of which remains unexplained by differences in characteristics. For females, the results are very different. First, the wages across race are much closer, with a 10.8% difference between AI and Whites, and a 14.6% difference between Blacks and Whites. For AI and Whites, approximately two-thirds of this difference is not explained by given characteristics and can be attributed to differences in returns. For Blacks and Whites, almost 100% of this difference is unexplained. For rural workers, comparing across race shows that characteristics are more important for males but returns are more important for females.

Within-race comparisons show the largest gender difference in wages for Whites, at 35.1%, of which close to half is explained by characteristics. For Blacks and AI, the gender wage differences are very close, at 18.6% and 22.2% respectively. Almost half of the Blacks' wage difference is explained by characteristics, but none of the AI wage difference is explained. In fact, if female AI possessed male characteristics, they would earn even less then they do with their own characteristics.

For the full samples of Whites and Blacks, the within-race comparison is fairly similar. However, while the percentage wage difference between Whites and Blacks is smaller than for the rural samples, a larger percentage is unexplained by characteristics. This implies that more is attributable to differences in returns, a portion of which is due to discrimination.

Comparing Whites and Blacks to American Indians who live on or near reservations gives researchers an idea of the degree of isolation or disadvantage faced by these groups. As is revealed by all sets of regressions, Blacks enjoy a relatively high returns to overall education, but face disproportionately severe wage penalties for low educational attainment.

Focussing the wage comparison on rural workers reveals that Black males continue to be at the bottom of the economic ladder. The results suggest, however, that rural Black males are less likely to suffer from discrimination, as implied by the smaller percentage of the wage difference that is unexplained by differences in characteristics. A final interesting note is the contrast in within-race gender differences in the rural versus the full samples. For both Blacks and Whites, the gender percentage wage difference is larger for rural workers, but more of the

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[13]Some portion of the race differences can be attributed to discrimination. Also, note that because some observed characteristics included in the wage equation are themselves products of discrimination, the percentage of the wage difference left unexplained may be an understatement of the full effects of racial and gender discrimination.

gap is explained by differences in observed characteristics. This implies a smaller gender effect for rural workers.

This paper has provided new, detailed evidence of the structure and source of wage differences for rural workers. In addition, it sheds light on American Indians, a group typically ignored in these studies. Two potential future research avenues of interest include the effect of reservation status on AI wages, given that rural residents probably face different labor market conditions than rural residents living on a reservation. A second avenue of research would be an investigation into racial and gender wage differences using metropolitan American Indians. Both of these tasks could be achieved using 1990 Census data. Also, the NMES data could be utilized more fully by incorporating information about health status and health insurance coverage. An interesting question would be to gauge the effect on AI wages from having access to (non-employer provided) health care coverage through the Indian Health Service.

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Appendix A

Figure 1
Variable Definitions

AGE:	age in years
AGE2:	age in years squared
YRSEDUC:	years of education
EDUCLT12:	= 1 if years of education less than 12
EDUC12:	= 1 if years of education equal to 12
EDUC13_15:	= 1 if years of education from 13 to 15, inclusive
EDUCGT15:	= 1 if years of education greater than 15
MARRY:	= 1 if married with spouse present
NUMKIDS:	number of own children under age 18 in household
YNGKIDS:	number of own children under age 6 in household
FEMALE:	= 1 if female
NOJOB:	= 1 if were ever without job for 1+ years (exclusive of school)
UNION:	= 1 if in union or covered by union contract
FIRMSIZE:	= 1 if ≤ 25 employees
	= 2 if 26-100 employees
	= 3 if 101-500 employees
	= 4 if > 500 employees
MANAGE:	= 1 if occupation is managerial
PRTECH:	= 1 if occupation is professional specialty, technical
SALES:	= 1 if occupation is sales
CLERIC:	= 1 if occupation is administrative support
SERVWK:	= 1 if occupation is service
LABOR:	= 1 if occupation is farming, forestry, fishing; laborers
OCRAFT:	= 1 if occupation is precision production, craft and repair
OPTIV:	= 1 if occupation is operators, fabricators, and laborers
OCCWMALE:	majority density (% of occupation that is white male)
MILLS:	Inverse Mills Ratio to control LF selection

Table A-1
Full Samples Variable Means
(Standard deviations in parentheses)

I. MALES				
	Blacks		Whites	
	All	LFP=1	All	LFP=1
A. Personal Characteristics				
# Observations	1178	935	4278	3849
LFP	0.76	--	0.91	--
	(0.43)		(0.28)	
AGE	35.02	34.92	35.52	35.46
	(9.08)	(8.82)	(9.00)	(8.85)
AGE2	13.09	12.97	13.42	13.36
(in 100's)	(6.77)	(6.53)	(6.73)	(6.60)
YRSEDUC	12.11	12.50	13.20	13.35
	(2.68)	(2.55)	(2.78)	(2.70)
YNGKIDS	0.17	0.19	0.22	0.23
	(0.37)	(0.40)	(0.42)	(0.42)
EDUCLT12	0.27	0.22	0.15	0.13
	(0.45)	(0.41)	(0.36)	(0.34)
EDUC12	0.42	0.42	0.37	0.37
	(0.49)	(0.49)	(0.48)	(0.48)
EDUC13_15	0.19	0.21	0.21	0.22
	(0.39)	(0.41)	(0.41)	(0.41)
EDUCGT15	0.12	0.15	0.26	0.28
	(0.32)	(0.36)	(0.44)	(0.45)
MARRY	0.45	0.51	0.66	0.68
	(0.50)	(0.50)	(0.48)	(0.47)
NOJOB	0.23	0.14	0.16	0.13
	(0.42)	(0.35)	(0.37)	(0.33)
HHSIZE	3.64	3.55	3.37	3.38
	(2.06)	(1.92)	(1.64)	(1.65)

B. Business Characteristics		
	Blacks	Whites
WAGE	8.66	11.53
(no log)	(4.53)	(6.40)
lnWAGE	2.04	2.30
	(0.49)	(0.56)
OCCWMALE	0.64	0.67
	(0.23)	(0.23)

Table A-1
(Continued)

	Blacks		Whites	
	All	LFP=1	All	LFP=1
FIRMSIZE	2.34		2.24	
	(1.16)		(1.12)	
UNION	0.25		0.22	
	(0.43)		(0.41)	
MANAGE	0.08		0.16	
	(0.26)		(0.37)	
PRTECH	0.10		0.18	
	(0.30)		(0.38)	
SALES	0.04		0.08	
	(0.19)		(0.27)	
CLERIC	0.10		0.07	
	(0.30)		(0.25)	
SERVWK	0.16		0.08	
	(0.37)		(0.26)	
LABOR	0.11		0.07	
	(0.32)		(0.26)	
OCRAFT	0.15		0.20	
	(0.36)		(0.40)	
OPTIV	0.25		0.16	
	(0.43)		(0.37)	

Table A-1
(Continued)

	Blacks		Whites	
	All	LFP=1	All	LFP=1
II. FEMALES				
A. Personal Characteristics				
# Observations	1820	1183	4996	3421
LFP	0.61	--	0.70	--
	(0.49)		(0.46)	
AGE	35.26	35.54	35.75	35.17
	(9.24)	(8.90)	(9.08)	(8.87)
AGE2	13.28	13.42	13.61	13.16
(in 100's)	(6.92)	(6.68)	(6.80)	(6.55)
YRSEDUC	12.19	12.74	12.98	13.34
	(2.28)	(2.29)	(2.59)	(2.47)
YNGKIDS	0.26	0.22	0.24	0.18
	(0.44)	(0.41)	(0.43)	(0.39)
EDUCLT12	0.28	0.18	0.14	0.10
	(0.45)	(0.39)	(0.35)	(0.30)
EDUC12	0.41	0.40	0.41	0.40
	(0.49)	(0.49)	(0.49)	(0.49)
EDUC13_15	0.21	0.26	0.22	0.25
	(0.40)	(0.44)	(0.42)	(0.43)
EDUCGT15	0.10	0.16	0.22	0.25
	(0.30)	(0.36)	(0.41)	(0.43)
MARRY	0.37	0.42	0.68	0.63
	(0.48)	(0.49)	(0.47)	(0.48)
NOJOB	0.43	0.34	0.51	0.44
	(0.49)	(0.47)	(0.50)	(0.50)
HHSIZE	3.77	3.52	3.41	3.22
	(2.05)	(1.87)	(1.56)	(1.52)

B. Job Characteristics (Just LFP=1)

	Blacks	Whites
WAGE	7.88	8.31
(no log)	(4.69)	(4.60)
lnWAGE	1.92	1.99
	(0.53)	(0.51)
OCCWMALE	0.30	0.30
	(0.24)	(0.25)

Table A-1
(Continued)

	Blacks		Whites	
	All	LFP=1	All	LFP=1
FIRMSIZE	2.47		2.19	
	(1.14)		(1.12)	
UNION	0.21		0.11	
	(0.41)		(0.31)	
MANAGE	0.08		0.14	
	(0.27)		(0.34)	
PRTECH	0.16		0.22	
	(0.37)		(0.42)	
SALES	0.07		0.11	
	(0.25)		(0.31)	
CLERIC	0.27		0.30	
	(0.44)		(0.46)	
SERVWK	0.24		0.12	
	(0.42)		(0.33)	
LABOR	0.03		0.02	
	(0.17)		(0.15)	
OCRAFT	0.03		0.02	
	(0.17)		(0.14)	
OPTIV	0.12		0.07	
	(0.33)		(0.25)	

Table A-2A
Wage Equations—Full Female Sample
(T-statistics in parentheses)

	Blacks	Whites
INTERCEPT	1.344**	1.384**
	(5.05)	(9.76)
AGE	0.035*	0.024**
	(2.56)	(3.11)
AGE2	-0.3E-3	-0.2E-3*
	(-1.75)	(-2.10)
EDUCLT12	-0.127	-0.248**
	(-1.61)	(-6.72)
EDUC12	-0.072	-0.181**
	(-1.25)	(-7.56)
EDUC13_15	0.028	-0.120**
	(0.56)	(-5.15)
NOJOB	-0.052	-0.109**
	(-1.84)	(-6.25)
FIRMSIZE	0.047**	0.090**
	(3.87)	(12.43)
UNION	0.225**	0.126**
	(6.67)	(4.93)
PRTECH	-0.108	-0.133**
	(-1.55)	(-4.85)
SALES	-0.058	-0.206**
	(-0.63)	(-5.83)
CLERIC	-0.168*	-0.173**
	(-2.40)	(-4.36)
SERVWK	-0.334**	-0.400**
	(-5.12)	(-10.69)
LABOR	-0.519**	-0.440**
	(-7.20)	(-10.99)
OCRAFT	-0.207**	-0.166**
	(-2.95)	(-5.10)
OPTIV	-0.219**	-0.281**
	(-3.44)	(-8.52)
MILLS	-0.068	-0.520**
	(-0.78)	(-4.30)
OCCWMALE	0.359**	0.220**
	(4.67)	(4.75)
R-SQUARED	0.3081	0.2502

* Significant at the 5% level.
** Significant at the 1% level.

Table A-2B
Wage Equations—Full Male Sample
(T-statistics in parentheses)

	Blacks	Whites
INTERCEPT	1.736**	1.537**
	(6.19)	(8.88)
AGE	0.013	0.033**
	(0.89)	(3.61)
AGE2	-0.8E-4	-0.3E-3*
	(-0.40)	(-2.14)
EDUCLT12	-0.305**	-0.205**
	(-4.19)	(-5.25)
EDUC12	-0.244**	-0.142**
	(-4.38)	(-5.39)
EDUC13_15	-0.210**	-0.104**
	(-3.76)	(-4.14)
NOJOB	-0.119**	-0.136**
	(-2.94)	(-5.64)
FIRMSIZE	0.053**	0.067**
	(3.92)	(8.89)
UNION	0.248**	0.177**
	(7.02)	(8.42)
PRTECH	-0.237**	0.067*
	(-3.76)	(2.31)
SALES	-0.657**	-0.147**
	(-8.91)	(-4.50)
CLERIC	-0.240**	-0.009
	(-3.94)	(-0.29)
SERVWK	-0.615**	-0.295**
	(-10.08)	(-8.56)
LABOR	-0.816**	-0.381**
	(-10.19)	(-6.61)
OCRAFT	-0.524**	-0.101
	(-5.42)	(-1.66)
OPTIV	-0.498**	-0.249**
	(-7.66)	(-6.21)
MILLS	-0.097	-0.023
	(-1.11)	(-0.56)
OCCWMALE	0.316**	0.303**
	(4.47)	(7.45)
R-SQUARED	0.3562	0.2504

* Significant at the 5% level.
** Significant at the 1% level.

Table 1
Rural Samples: Variable Means
(Standard deviations in parentheses)

I. MALES

	American Indians		Blacks		Whites	
	All	LFP=1	All	LFP=1	All	LFP=1
A. Personal Characteristics						
# Observations	975	599	238	186	1094	942
LFP	0.66	--	0.73	--	0.87	--
	(0.47)		(0.44)		(0.33)	
AGE	34.46	34.93	36.13	35.82	36.12	36.05
	(9.06)	(8.69)	(9.59)	(9.65)	(9.23)	(9.06)
AGE2	12.70	12.95	13.97	13.75	13.90	13.82
(in 100's)	(6.68)	(6.42)	(7.15)	(7.13)	(6.96)	(6.83)
YRSEDUC	11.79	12.20	11.18	11.51	12.41	12.68
	(2.50)	(2.39)	(2.63)	(2.66)	(2.68)	(2.53)
YNGKIDS	0.33	0.35	0.18	0.20	0.23	0.25
	(0.47)	(0.48)	(0.38)	(0.40)	(0.42)	(0.43)
EDUCLT12	0.34	0.28	0.45	0.40	0.21	0.17
	(0.47)	(0.45)	(0.50)	(0.49)	(0.41)	(0.38)
EDUC12	0.39	0.40	0.37	0.39	0.45	0.46
	(0.49)	(0.49)	(0.48)	(0.49)	(0.50)	(0.50)
EDUC13_15	0.19	0.21	0.13	0.15	0.18	0.19
	(0.39)	(0.41)	(0.40)	(0.36)	(0.38)	(0.39)
EDUCGT15	0.08	0.11	0.05	0.06	0.16	0.17
	(0.28)	(0.31)	(0.21)	(0.24)	(0.36)	(0.38)
MARRY	0.61	0.68	0.48	0.54	0.70	0.73
	(0.49)	(0.46)	(0.50)	(0.50)	(0.46)	(0.44)
NOJOB	0.26	0.22	0.18	0.08	0.14	0.10
	(0.44)	(0.41)	(0.39)	(0.28)	(0.35)	(0.30)
HHSIZE	4.30	4.24	4.00	3.94	3.47	3.47
	(2.16)	(2.15)	(2.39)	(2.36)	(1.61)	(1.61)

B. Job Characteristics (Just LFP=1)

	American Indians	Blacks	Whites
WAGE	8.09	7.38	10.20
(no log)	(4.21)	(3.97)	(5.38)
lnWAGE	1.96	1.88	2.20
	(0.53)	(0.46)	(0.51)
OCCWMALE	0.68	0.68	0.70
	(0.22)	(0.20)	(0.21)
FIRMSIZE	1.70	2.23	2.13
	(0.98)	(1.16)	(1.08)
UNION	0.11	0.13	0.19
	(0.31)	(0.33)	(0.39)
MANAGE	0.08	0.01	0.12
	(0.27)	(0.12)	(0.32)
PRTECH	0.12	0.05	0.14
	(0.32)	(0.22)	(0.35)
SALES	0.04	0.01	0.05
	(0.19)	(0.12)	(0.23)
CLERIC	0.05	0.05	0.05
	(0.23)	(0.23)	(0.22)

Table 1
(Continued)

	American Indians		Blacks		Whites	
	All	LFP=1	All	LFP=1	All	LFP=1
SERVWK		0.15		0.13		0.07
		(0.36)		(0.34)		(0.25)
LABOR		0.20		0.24		0.11
		(0.40)		(0.42)		(0.31)
OCRAFT		0.18		0.16		0.24
		(0.39)		(0.37)		(0.43)
OPTIV		0.17		0.33		0.22
		(0.38)		(0.47)		(0.42)

II. FEMALES

	American Indians		Blacks		Whites	
	All	LFP=1	All	LFP=1	All	LFP=1
A. Personal Characteristics						
# Observations	1146	550	347	223	1275	851
LFP	0.51	--	0.59	--	0.68	--
	(0.50)		(0.49)		(0.46)	
AGE	34.82	35.71	35.18	35.89	36.55	36.09
	(9.04)	(8.55)	(8.88)	(8.39)	(9.13)	(8.83)
AGE2	12.94	13.48	13.16	13.58	14.19	13.80
(in 100's)	(6.64)	(6.29)	(6.63)	(6.31)	(6.91)	(6.62)
YRSEDUC	11.69	12.41	11.56	12.16	12.45	12.88
	(2.48)	(2.31)	(2.44)	(2.34)	(2.55)	(2.46)
YNGKIDS	0.40	0.33	0.28	0.24	0.25	0.20
	(0.49)	(0.47)	(0.45)	(0.42)	(0.43)	(0.40)
EDUCLT12	0.33	0.20	0.38	0.28	0.20	0.14
	(0.47)	(0.40)	(0.49)	(0.45)	(0.40)	(0.35)
EDUC12	0.41	0.44	0.41	0.44	0.44	0.43
	(0.49)	(0.50)	(0.49)	(0.50)	(0.50)	(0.50)
EDUC13_15	0.20	0.25	0.12	0.14	0.21	0.25
	(0.40)	(0.43)	(0.33)	(0.35)	(0.41)	(0.43)
EDUCGT15	0.06	0.11	0.08	0.14	0.15	0.18
	(0.24)	(0.31)	(0.28)	(0.34)	(0.36)	(0.39)
MARRY	0.60	0.61	0.43	0.51	0.75	0.72
	(0.49)	(0.49)	(0.50)	(0.50)	(0.43)	(0.45)
NOJOB	0.45	0.51	0.45	0.36	0.54	0.46
	(0.50)	(0.50)	(0.50)	(0.48)	(0.50)	(0.50)
HHSIZE	4.31	4.00	4.20	3.89	3.48	3.35
	(2.09)	(2.03)	(2.23)	(2.08)	(1.47)	(1.41)
B. Job Characteristics (Just LFP=1)						
	American Indians		Blacks		Whites	
WAGE		6.31		6.38		7.09
(no log)		(3.04)		(4.36)		(3.68)
lnWAGE		1.69		1.70		1.84
		(0.46)		(0.50)		(0.47)
OCCWMALE		0.27		0.32		0.26
		(0.22)		(0.25)		(0.24)
FIRMSIZE		1.71		2.38		2.09
		(0.97)		(1.08)		(1.08)
UNION		0.06		0.08		0.08
		(0.23)		(0.27)		(0.28)

Table 1
(Continued)

	American Indians		Blacks		Whites	
	All	LFP=1	All	LFP=1	All	LFP=1
MANAGE		0.08		0.04		0.10
		(0.28)		(0.19)		(0.30)
PRTECH		0.18		0.17		0.19
		(0.38)		(0.37)		(0.39)
SALES		0.11		0.06		0.10
		(0.32)		(0.23)		(0.30)
CLERIC		0.24		0.08		0.29
		(0.43)		(0.28)		(0.45)
SERVWK		0.24		0.25		0.15
		(0.43)		(0.44)		(0.36)
LABOR		0.04		0.07		0.02
		(0.20)		(0.26)		(0.15)
OCRAFT		0.06		0.04		0.02
		(0.23)		(0.22)		(0.14)
OPTIV		0.04		0.28		0.12
		(0.21)		(0.45)		(0.33)

Table 2A
LnWage Equations—Rural Females
(T-statistics in parentheses)

	American Indians	Blacks	Whites
INTERCEPT	0.669 (1.45)	1.479* (1.99)	1.418** (4.87)
AGE	0.051* (2.15)	0.018 (0.49)	0.016 (1.05)
AGE2	-0.6E3 (-1.85)	-0.1E-3 (-0.22)	-0.1E-3 (-0.50)
EDUCLT12	-0.427** (-4.77)	-0.170 (-0.96)	-0.140 (-1.88)
EDUC12	-0.216** (-3.16)	-0.205 (-1.36)	-0.118* (-2.27)
EDUC13_15	-0.233** (-3.70)	-0.144 (-0.90)	-0.047 (-0.95)
NOJOB	-0.074* (-2.20)	0.064 (0.95)	-0.134** (-4.24)
FIRMSIZE	0.084 (5.14)	0.083* (2.26)	0.096** (6.41)
UNION	0.228** (3.19)	0.068 (0.59)	0.011 (0.21)
PRTECH	0.054 (0.65)	-0.248 (-1.24)	0.084 (1.29)
SALES	-0.023 (-0.20)	-0.595** (-2.59)	-0.199* (-2.91)
CLERIC	0.143 (1.44)	-0.418 (-1.93)	0.001 (0.01)
SERVWK	-0.058 (-0.65)	-0.370 (-1.85)	-0.295** (-4.33)
LABOR	0.222* (-2.40)	-0.581** (-2.63)	-0.375** (-3.33)
OCRAFT	0.233* (-2.48)	-0.572* (-2.44)	-0.013 (-0.11)
OPTIV	0.265** (2.85)	-0.330 (-1.66)	-0.176* (-2.54)
MILLS	-0.677** (-4.04)	-0.209 (-1.43)	-0.130 (-1.56)
OCCWMALE	0.073 (0.57)	0.417** (2.66)	0.288** (3.46)
R-SQUARED	0.2601	0.2747	0.2703

* Significant at the 5% level.
** Significant at the 1% level.

Table A-2B
Wage Equations—Full Male Sample
(T-statistics in parentheses)

	Blacks	Whites
INTERCEPT	1.736**	1.537**
	(6.19)	(8.88)
AGE	0.013	0.033**
	(0.89)	(3.61)
AGE2	-0.8E-4	-0.3E-3*
	(-0.40)	(-2.14)
EDUCLT12	-0.305**	-0.205**
	(-4.19)	(-5.25)
EDUC12	-0.244**	-0.142**
	(-4.38)	(-5.39)
EDUC13_15	-0.210**	-0.104**
	(-3.76)	(-4.14)
NOJOB	-0.119**	-0.136**
	(-2.94)	(-5.64)
FIRMSIZE	0.053**	0.067**
	(3.92)	(8.89)
UNION	0.248**	0.177**
	(7.02)	(8.42)
PRTECH	-0.237**	0.067*
	(-3.76)	(2.31)
SALES	-0.657**	-0.147**
	(-8.91)	(-4.50)
CLERIC	-0.240**	-0.009
	(-3.94)	(-0.29)
SERVWK	-0.615**	-0.295**
	(-10.08)	(-8.56)
LABOR	-0.816**	-0.381**
	(-10.19)	(-6.61)
OCRAFT	-0.524**	-0.101
	(-5.42)	(-1.66)
OPTIV	-0.498**	-0.249**
	(-7.66)	(-6.21)
MILLS	-0.097	-0.023
	(-1.11)	(-0.56)
OCCWMALE	0.316**	0.303**
	(4.47)	(7.45)
R-SQUARED	0.3562	0.2504

* Significant at the 5% level.
** Significant at the 1% level.

Table 3
Returns to Education by Gender and Race

	Males	Females
I. Rural Samples		
a. Indians	0.022	0.056***
b. Blacks	0.037**	0.031
c. Whites	0.003	0.031***
II. Urban/Rural Combination Samples		
a. Blacks	0.046***	0.042***
b. Whites	0.028***	0.038***

*10% significance; ** 5% significance; *** 1% significance

Table 4
Wage Differences and Percentage Unexplained

	Males		Females		Males vs Females	
	Percentage Difference in Wages	Percentage of Total Wage Difference that is Unexplained	Percentage Difference in Wages	Percentage of Total Wage Difference that is Unexplained	Percentage Difference in Wages	Percentage of Total Wage Difference that is Unexplained
American Indians vs Rural Whites	23.7	14.3	10.8	65.7	--	--
Rural Blacks vs Rural Whites	31.1	44.4	14.6	97.3	--	--
Rural Whites vs Rural Whites	--	--	--	--	35.1	44.7
Rural Blacks vs Rural Blacks	--	--	--	--	18.6	48.4
American Indians vs American Indians	--	--	--	--	22.2	101.0
Blacks vs Whites	26.2	61.8	6.8	45.6	--	--
Whites vs Whites	--	--	--	--	31.2	56.1
Blacks vs Blacks	--	--	--	--	11.8	63.6

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